

NASA TECH BRIEF

John F. Kennedy Space Center



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Voltage Monitoring System

The problem:

Sensitive electronic recording instruments, data-processing equipment, and other related instrumentation require constant supply voltages. Voltage variations above or below the required levels frequently cause the loss of data or the storage of false information. Once this happens, it takes a long time to determine what caused the discrepancy in the data. Conventional monitoring equipment, which records the supply voltage variations, is expensive and relatively complex. Normally it is installed on location with the system that it monitors.

The solution:

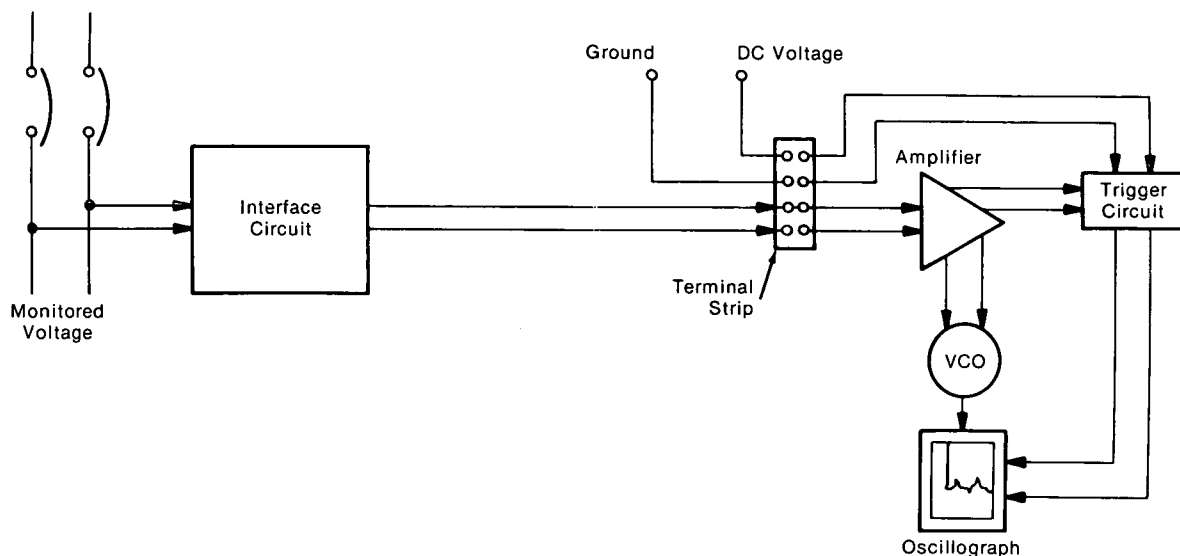
A relatively-simple voltage monitoring system has been developed. The system serves as a central station which can monitor voltage variations through transmission lines connected to equipment scattered in different locations.

How it's done:

The system incorporates power interface circuits which are coupled to the bus bars of the monitored equipment. These interface circuits reduce the recorded voltages to a level suitable for transmission over conventional telephone lines to a centrally-located control station. The station is equipped with instruments which record only the voltage levels that are above or below the specified value.

As shown in the system block diagram, the telephone transmission lines from the power interface circuits are connected to the terminal strip at the central station. The strip drives an amplifier which has a pair of outputs. One output is fed to a voltage-controlled oscillator (VCO) and the other to a trigger circuit.

The voltage-controlled oscillator is optional. It is used in some systems to condition the signal to make it compatible with certain types of oscillographs. The



Voltage Monitoring System Block Diagram

(continued overleaf)

trigger circuit, on the other hand, is used for turning on the oscillograph when the monitored voltage on the bus bars is above or below the required level. The oscillograph is designed to operate at a relatively high speed to produce a high-resolution graph of the monitored voltage.

Note:

Requests for further information may be directed to:

Technology Utilization Officer
Kennedy Space Center
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Kennedy Space Center, Florida 32899
Reference: TSP75-10154

Patent status:

This invention has been patented by NASA (U.S. Patent No. 3,869,667). Inquiries concerning non-exclusive or exclusive license for its commercial development should be addressed to:

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